

Patent Abstracts of Japan

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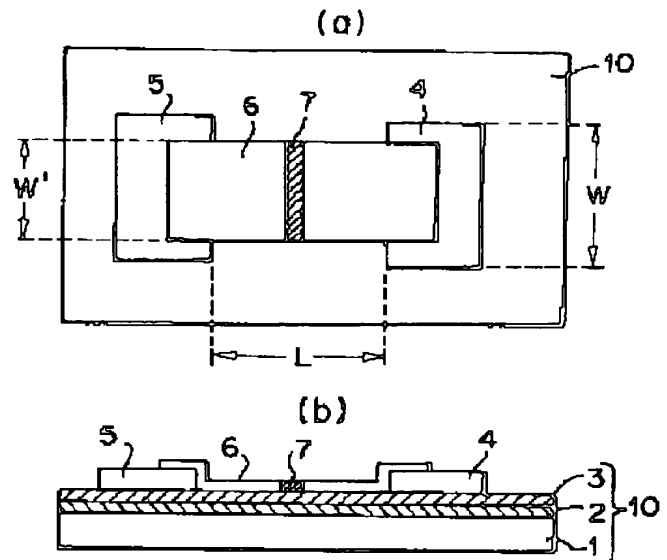
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TITLE : ELECTRON EMITTING ELEMENT,  
ELECTRON SOURCE AND IMAGE  
FORMING APPARATUS



ABSTRACT : PROBLEM TO BE SOLVED: To provide an electron source in which a plurality of electron emitting elements have a uniform electron emitting characteristic by forming an insulating substrate of an activation promoting layer and an activation restraining layer laminated on the promoting layer.

SOLUTION: An electron emitting element comprises, on an insulating substrate 10, a pair of element electrodes 4, 5 disposed opposite to each other, and a conductive thin film 6 interposed between the electrodes 4, 5 and provided with an electron emitter 7. The substrate 10 is constituted by laminating, on a base 1, an activation promoting layer 3 having a thermoconductivity lower than that of an activation restraining layer 2 on the restraining layer 2 made of an excellent thermoconductive insulating material. The base 1 is preferably made of quartz glass, glass including a reduced quantity of impurity, ceramics, an Si substrate or the like; the restraining layer 2, of oxides such as aluminum oxide or nitride such as silicon nitride; the promoting layer 3, of SiO<sub>2</sub> or glass including mainly SiO<sub>2</sub>; and the thin film 6, a particulate film composed of particles. The emitter 7 is formed of a crack of high resistance generated by energizing a part of the thin film 6.

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